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Datasheet for ABIN1842230
NEFH ELISA Kit

Overview

Quantity:	96 tests
Target:	NEFH
Reactivity:	Human, Rat, Pig, Cow
Method Type:	Sandwich ELISA
Application:	ELISA

Product Details

Purpose:	ELISA kit for the detection of pNF-H in plasma, serum, CSF and tissue extracts.
Analytical Method:	Quantitative
Detection Method:	Colorimetric
Immunogen:	Phosphorylated axonal NF-h (pNF-H)
Characteristics:	Hosts: Chicken, Rabbit

To develop this kit we affinity purified our chicken antibody to pNF-H, CPCA-NF-H and applied 50ng of this pure protein to each well of the ELISA dish. This is an unusually high affinity and specificity antibody and is therefore ideal for antigen capture. To detect the binding of pNF-H to the chicken antibody we made use of our affinity purified rabbit polyclonal antibody RPCA-NF-H. This combination of two affinity purified polyclonal antibodies provides an unusual degree of sensitivity. The kit contains one standard ELISA 96 well plate coated with the chicken antibody which has been blocked and so is ready to use. The plate can be separated into 8 x 12 well strips. The kit includes enough of the rabbit anti pNF-H detection antibody and a pure pNF-H standard. Also included are a goat anti-rabbit alkaline phosphatase conjugate, p-Nitrophenol

phosphatase substrate and buffer concentrates, as well as detailed instructions.

Target Details

Target: NEFH

Abstract: [NEFH Products](#)

Background: Neurofilament subunit subunit NF-H is one of the three so-called neurofilament triplet proteins which are major structural components of neurons. These proteins are particularly heavily concentrated in the axons of large projection neurons, where they are clearly occupy the majority of the cytoplasm. The NF-H molecule has a highly unusual protein sequence which includes a highly repetitive region made up of slight variants of the 6-8 amino acid sequences based on the peptide lysine-serine-proline (KSP in the single letter code). There are about 50 of these tandemly repeated peptides in known mammalian NF-H sequences, the exact number being a little variable in different species. Interestingly, the serine residues are not phosphorylated in dendritic and perikaryal neurofilaments but are heavily phosphorylated in axonal neurofilaments, so that antibodies which recognize the KSP phosphorylated from of NF-H, which we refer to as pNF-H, are excellent markers of axons. We have developed a sensitive ELISA kit to accurately quantify the level of expression of this protein in a variety of experimental situations. Since NF-H is expressed later in development, and becomes heavily phosphorylated later than the other two triplet proteins this kit can be used to monitor neuronal maturation. Neurofilament expression is up regulated in a variety of damage and disease states, and this kit can be used to accurately quantify this up regulation. We have also recently found that this kit can detect pNF-H in the sera of animals with spinal cord and brain lesions, suggesting the exciting possibility that pNF-H is a useful biomarker of neuronal and more specifically axonal injury or degeneration. Further studies show that this assay can detect informative levels of pNF-H in both the CSF and blood of humans suffering from a variety of neurological disorders. In fact, there are several reasons to think that pNF-H might an unusually useful and informative biomarker of axonal injury and degeneration. Firstly, pNF-H is an abundant component of axons as noted above, so should be released in relatively large quantity following axonal damage and degeneration. Secondly, it is unusually resistant to proteolysis, apparently partly due to the heavy phosphorylation, meaning that it is likely to be relatively long lived on release into CSF and blood, aiding its detection. Thirdly, the unusual multiepitope nature of the phosphorylation sites coupled with their great immunogenicity mean that pNF-H can be captured and detected with unusual avidity by appropriate immunoreagents. Finally, pNF-H detection reflects axonal injury and much recent evidence suggests that a variety of damage and disease states can be regarded as the result of axonal injury. The unique geometry

Target Details

of neurons renders the axons particularly sensitive to mechanical injury or local loss of oxygen or metabolic substrates, and our assay can determine how much of this axonal injury has occurred. This kit was recently used to show that pNF-H levels were greatly elevated in the CSF of patients with subacute sclerosing panencephalitis, and that the levels detected correlated well with the state of progression of the disease.

Molecular Weight: 110 kDa

Application Details

Plate: Pre-coated

Restrictions: For Research Use only

Handling

Storage: 4 °C